

Approved For Release 2005/06/06 : CIA-RDP78B04770A002500050021-8

Technical Directive No. 1/Assign. I
Contract No.
Task Order No. 01/0/15132
Date 8 July 1960

REGISTERED - RETURN RECEIPT REQUESTED

[Redacted Box]

Declass Review by NGA.

Gentlemen:

This Technical Directive constitutes authorization and direction for you to perform the services and furnish the supplies in the manner prescribed in the attached schedule of 2 pages, numbered and dated the same as this letter. The attached schedule is intended to be complete with respect to work description and technical instructions relative thereto, place and period of performance, completion date, f.o.b. delivery point, inspection requirements and any other directions reasonably necessary for your prompt performance of the work authorized.

Unless you indicate to the contrary within ten (10) days from receipt hereof, you will be considered as having agreed to the feasibility and completeness of this Technical Directive and to have in all respects accepted same for prompt performance.

It is specifically understood, however, that this letter shall not make any increases(s) in either the scope of work or amount of funds obligated or otherwise to modify the terms and conditions of the above contract or task order, any such modifications being expressly reserved for bilaterally executed contractual amendments.

All correspondence relative to this Technical Directive shall be forwarded to the Contracting Officer at the address below, inner envelope being marked to the attention of the undersigned individual.

Very truly yours,

Contracting Officer
Address: [Redacted Box]

2430 E Street, N.W.
Washington 25, D. C.

Acknowledged and Accepted

BY _____

TITLE _____

Return the original and two signed copies
to the Contracting Officer

S-E-C-R-E-T
(When Filled In)
NOTICE

This material contains information affecting the national defense of the United States within the meaning of the espionage laws, Title 18, USC, Secs. 793 and 794, the transmission or revelation of which in any manner to an unauthorized person is prohibited by law.

(Plain paper may be used for continuation, if required.)

SCHEDULE

Contract No.:
Task Order No.: 01/0/18132
Technical Directive No.: 1/Assign. I
Date: 8 July 1960

WORK DESCRIPTION AND TECHNICAL INSTRUCTIONS

I. This Technical Directive applies to Assign. I on Page 1 of subject contract and Task Order.

II. Provide the necessary professional services to establish and develop the design criteria for a high capacity - high rate logical system for a photographic intelligence center. These criteria shall include, but not necessarily be limited to: (1) functional diagrams and organization charts describing the proposed operations of the center; (2) procedural flow charts showing the entry, inter-change and use of information; (3) general criteria which will establish the philosophy of operation and systems design; (4) equipment specifications for selected read-out systems, memory devices, etc.; (5) facility requirements and lay-out drawings; (6) communication methods and routes; (7) information programming and indexing methods; and (8) the plan for the final verification of system value and its ultimate optimization.

III. The development of these criteria shall begin with a recognition and analysis of induced and deduced forms of logic used in photographic intelligence work, (see Technical Directive #1 for Assignment No. II, Paragraph 2). Final criteria shall be derived, in part, by a posteriori means, but shall not necessarily be completely based on existing methods of photographic intelligence. Unique methods and highly specialized electro and electro/mechanical machine aids shall be emphasized in order to: (1) increase the capacity of the center to handle all current and anticipated information loads; (2) minimize the center's dependence on skilled or key individuals; and (3) mechanize or simplify the system to allow use of trainees and to shorten the training period of potential PI specialists.

Place, Performance Period and Completion Date:

Consignee, Ship to, F.O.B. Point:

Inspection Requirements:

Packing and Packaging:

Additional Instructions:

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IV. The eight criteria described above shall be developed concurrently. Prior to delivery to the Issuing Office in the form of reports, specifications and/or drawings, the inter-relationships of the respective criteria shall have been correlated and conflicts resolved. The final criteria shall reflect the proposed facility, equipments, methods of use and all attendant factors including anticipated costs, construction schedules, maintenance programs and proposed follow-on programs to minimize obsolescence.

P. O. Box 1407
Main Post Office
Washington 13, D.C.

RE: Re-Submittal of Proposed Technical Directive
No. II Assignment I

Dear Chick:

As a result of severe, detailed re-analysis by Tad, me and others here since my return from the last trip, I am taking the liberty of re-submitting a re-draft of this Technical Directive, which we have dated 20 June 1961 and titled "Re-Draft #2, Technical Directive".

This re-submission is made by me with full awareness of the Divisional and Branch comments, which were very constructively offered on our original draft submittal. You may not have seen these comments which essentially were provided for our guidance by [] and I believe [] and perhaps others, as well as a final comment and recapitulation of the comments of others by []. The reason for your not seeing them is that upon my departure from Washington, I requested a rough draft of the Technical Directives on which the penciled comments were made and, therefore, they did not pass through your hands.

It is my sincere feeling that this Technical Directive and the work proposed therein is, in fact, completely necessary and essential for the benefit of NPIC and should be directed for our undertaking or should be undertaken by someone else en-toto, commencing immediately. I say this in spite of my general agreement upon departing from Washington that perhaps the work proposed in this Technical Directive was, in fact, being done and further, that perhaps there might be other persons more qualified than [] to handle portions thereof. I now would prefer to correct any such impressions or statements, as I believe that my feelings about the lack of necessity of this work are contrary to the facts.

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So that you may know of the constructive comments and they were constructive, given to our Technical Directive submission (even though they negated the essence of this Technical Directive), these are provided herein for the benefit of John C., Dutch S., and others who may wish to be knowledgeable of them, as well as [] and yourself:

Chris's comments, Page 1, 8 June 1961 -- "My preference is that [] or similar organization with the aid of a photogrammetrical do the entire error analysis. Also to direct p.g. techniques analysis. We in effect have been operating for the last 5 yrs. in actual production serving the Intell. Comm. and in this respect are far better qualified than []"

Chris's comments, Page 2 -- "Not qualified".

[] comments -- "We can see no definite value to be derived by TISD from the proposed study. We are aware of most of the problems suggested and the full course of action needed for their solution. Considering [] capabilities in photogrammetric field we do not see how they can materially help us by such a study. There might be some merit in a study of greater correlation of TI operations with photo analysis operations along the lines of the integration of editing and graphical analysis with photo analysis (PI) activities".

I am also enclosing the original Technical Directive draft for comparison with the revised draft, in order that all may understand that we have incorporated these constructive criticisms in this second draft.

I would like to make special mention of the fact that Chris's comment, which is constructive, to us, even though its statement is a simple "not qualified" and I think you are well aware that [] does not consider itself in any respect "all things to all men"; however, in this case, I believe we not only have the mathematical talent available, some of it on board and one man in particular who will be on board shortly, but we would certainly intend to serve you as we have tried to do before in always obtaining the best possible talent, whether it be ourselves or others.

Because certain double checking here on my part convinces me that, while some of the very important activities outlined in this Technical Directive are being done "in house" by members of NPIC, nevertheless, the overall mandatory integration of the work which dove-tails with other work outlined in this Technical Directive is not, to the best of my knowledge, being

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25X1 performed, nor coordinated into a useful fashion under a single person, staff, outside organization or a completely objective group of persons within NPIC. This I feel is of utmost importance to NPIC now and particularly in the future. I think [] would be derelict in our duty to you if we did not make this strong expression for your consideration.

I take personal responsibility for the re-draft of the Technical Directive but it has been gone over by Tad and others here and they feel it outlines this very important area for your consideration and again, I feel the earlier this work is constituted, the better we will all be for what we fully anticipate is coming in the future.

Early consideration of this by those interested parties will be appreciated here and perhaps you can give us a word on it before any of us come East again.

Yours very truly,

[]

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PJD vc

cc:

[]

BEST COPY
Available

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TECHNICAL DIRECTIVE

I. GENERAL

The Contractor shall be responsible for the coordination of and providing of the necessary professional personnel and services to analyze the present methods of technical intelligence operations, including the work of any Consultants and/or non-Contractor personnel used. The purposes of such analysis shall be to determine those areas and activities which can or may be better performed on an on-line capacity, as contrasted to off-line or "support" activities. Upon conclusion of such analysis, the Contractor shall develop and submit recommendations for changes (if any) for modifications of activities and shall determine methods of implementing any recommended changes to on-line functions which will enhance and expedite the work of overall photo intelligence functions. Such implementation methods, as recommended, shall be directed toward increasing the efficiency and capacity of the total intelligence process. Any and all recommended plans or portions thereof will recognize and provide wherever possible, for the non-interference of changes with the basic interpretation requirements for continuous operations. Where considered necessary or appropriate, consideration will be made for technical intelligence

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functions to parallel or to precede the interpretation process. Implementation methods and recommendations shall include descriptions of personnel qualifications and interactions between organizational components.

All such analysis, recommendations and data submitted for any modifications of current methods and implementation thereof shall be accompanied by appropriate back-up data fully describing the reasoning used, the criteria and the appropriate work-papers, diagrams and other graphic material for IO's evaluation of said work and/or recommendations.

II. DETAILED WORK DESCRIPTION

The Contractor shall coordinate efforts required to conduct mathematical analysis of all photogrammetric techniques for the purpose of determining possible useful applications of such mathematical results to technical intelligence. Suggested areas for such mathematical analyses shall include error evaluations (where applicable) for determination of orders of accuracy, using various and different mathematical factors where appropriate, thus providing trial solutions under various given conditions, as well as providing and illustrating an optimization and mathematical validation in each subject area. These suggested areas of investigation shall include, but shall not necessarily be

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limited to the following:

- A. Interior Orientation Factors of (camera) equipment
- B. Exterior Orientation Factors
- C. Horizontal Distance Measurement - its factors, methods
& results
- D. Height Determine - its factors, methods & results
- E. Geographic Position Determination - its factors, methods
& results
- F. Rectification Methods - its factors, methods & results
- G. Controls Extension
- H. Terrestrial Photogrammetry

Investigations and analyses will, of necessity, develop all mathematical expressions to be considered which, in turn, will be re-derived and/or reiterated for determining merits of similar or corresponding expressions for use in and leading to the desired results. Cross-checks on derivations shall provide for the use of alternate model formulations, e.g., "tilt-swing" versus the "roll-pitch" attitude conventions, etc. Relative merits of various coordinate systems for use in different problem models shall likewise be evaluated.

Such mathematical analysis of appropriate problem areas as outlined above shall be specifically directed towards the useful determination of methods for improvement (if any) for both quantity and

quality of work performed in the following areas, with a maximum relief to the required human effort by such modifications, techniques and methods thus found. The areas of work are:

- A. Evaluation of present and known future, or proposed technical intelligence techniques which are directly related to accuracy and efficiency of such work and techniques; that is, "speed of output".
- B. Determination of any alternate techniques to improve accuracy and efficiency.
- C. The identification of new computer applicable problems together with appropriate weighting of these according to complexity and frequency of occurrence - within the work areas of technical intelligence outputs.
- D. Research for and examination of all definable "error factors" and contributing factors appropriate to the several technical intelligence problems and categories of such work.
- E. Devise and develop methods of minimizing major error contributing factors through the use of mathematical modeling and associated techniques.

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- F. Where found appropriate, determine standard procedures for error analysis of typical problems for the director's present and future use as he sees fit.
- G. Exposition of areas of work and/or techniques involved in technical intelligence which are found suitable for integrating with other functions of the Center on an "equal" basis over that provided through a purely "support" basis.

17 MAY 1961
(1st DRAFT)

Through the use of the necessary professional services, conduct an analysis of technical intelligence operations in order to determine those activities which are to be performed in an on-line capacity, as contrasted to off-line or supporting activities. Following the definition of such activities, determine methods of implementing the on-line functions with the overall photo intelligence function. Such implementation methods shall be directed toward increasing the efficiency and capacity of the intelligence process. Any recommended plan, however, must be on a non-interference basis with the basic interpretation requirements. Where necessary, technical intelligence functions may parallel or precede the interpretation process. Implementation methods shall include determining personnel qualifications and interactions between organizational components.

determine possible applications to technical intelligence. It shall include error evaluations where applicable to determine order of accuracy of different solutions under various given ~~data~~ conditions. Areas of investigation shall include but ~~will~~^{shall} not be limited to the following:

- A. Interior Orientation
- B. Exterior Orientation
- C. Horizontal Distance Measurement
- D. Height Determination
- E. Geographic Position Determination
- F. Rectification Methods
- G. Control Extension
- H. Terrestrial Photogrammetry

In the course of these investigations all mathematical expressions considered will be re-derived to determine the merits of corresponding expressions ~~for~~ leading to the same result. Cross-checks on derivations will be made using alternate model formulations, such as the tilt-swing versus the roll-pitch attitude ^{conventions} ~~descriptions~~. The relative merits of the various coordinate systems for use in different problem models will be evaluated.

The mathematical analysis encompassing the problem areas outlined above shall be directed toward completion of the following specific tasks:

- with ~~scope~~ regard to accuracy and ~~efficiency~~ efficiency (specifically)
- B. Suggest alternate techniques to improve accuracy and efficiency.
 - C. Identify computer applicable problems and ^{evaluate} weigh these according to complexity and frequency of occurrence.
 - D. Examine all error contributing factors for the various technical intelligence problems.
 - E. Suggest methods of minimizing major error contributing factors.
 - F. Determine standard procedures for error analysis of typical problems for the client's use.

Support functions. Isolate computer applicable functions and
~~rank~~ these according to complexity and frequency of occurrence.
Investigate merits and feasibility of automating other supporting functions.